

Grizzly *Industrial, Inc.*®

MODEL H8189/H8190 GASOLINE PRESSURE WASHER OWNER'S MANUAL



H8189



H8190

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#LO9705 PRINTED IN CHINA

 **WARNING!**

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.

The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

 **WARNING!**

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Table of Contents

INTRODUCTION.....	2
Foreword	2
Contact Info	2
General Identification	5
SECTION 1: SAFETY	6
Safety Instructions for Machinery	6
Additional Safety Instructions for Pressure Washers.....	8
SECTION 3: SETUP	9
Unpacking	9
Inventory.....	9
Assembly.....	10
SECTION 4: OPERATIONS	11
Connections and Controls.....	11
Break-In.....	12
Adjusting Pressure	12
Changing Nozzles	12
Applying Chemicals.....	13
Standing Water Source	14
Spray Gun Lock	15
Starting.....	15
Shutdown Procedure.....	16
SECTION 4: ACCESSORIES	17
SECTION 6: MAINTENANCE	18
Schedule	18
General Maintenance	19
Engine Oil Change	19
Pump Oil Change.....	20
Air Filter Service.....	21
Spark Plug Adjustment and Replacement	21
Troubleshooting.....	22
H8189 Pump Parts Breakdown.....	23
H8190 Pump Parts Breakdown.....	25
H8189 Engine Parts Breakdown	27
H8190 Engine Parts Breakdown	29
H8189 Frame and Accessories Parts Breakdown	31
H8190 Frame and Accessories Parts Breakdown	33
H8189-90 Machine Labels Breakdown	35
WARRANTY AND RETURNS	38

INTRODUCTION

Foreword

We are proud to offer the Model H8189 6.5HP 2500 PSI Pressure Washer and the Model H8190 13 HP 3600 PSI Pressure Waasher. This machine is part of a growing Grizzly family of fine power tools. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

The specifications, drawings, and photographs illustrated in this manual represent the Model H8189 and H8190 when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly.

For your convenience, we always keep current Grizzly manuals available on our website at **www.grizzly.com**. Any updates to your machine will be reflected in these manuals as soon as they are complete. Visit our site often to check for the latest updates to this manual!

Contact Info

If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.
c/o Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

We stand behind our machines. If you have any service questions or parts requests, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
Fax: (800) 438-5901
E-Mail: techsupport@grizzly.com
Web Site: <http://www.grizzly.com>





MACHINE DATA SHEET

Customer Service #: (570) 546-9663 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

MODEL H8189 6.5 HP 2500 PSI PRESSURE WASHER

Product Dimensions:

Machine Size 21"W x 37"D x 28"H
Machine Weight 94 lbs.

Motor:

Type Gasoline Fueled Internal Combustion
Displacement 196cc
Horsepower 6.5HP
Torque 7.38 ft. lbs.
Starter Hand-Pulled Rope
Ignition Transistor Electronic
Recommended Oil Weight SAE 30
Spark Plug NGK BPR6ES

Pump:

Speed 3400 RPM
Maximum Pressure 2500 PSI
Capacity 4 GPM @3400 RPM
Power Requirement 6.5HP
Recommended Oil Weight SAE 30

Construction:

Cart Steel

Features:

- 34½" spray gun with comfort grip
- 5 quick change spray nozzles 0°, 15°, 25°, 40°, and a low pressure soap/chemical nozzle.
- Wheeled cart for added maneuverability
- Pump thermal overload protection





MACHINE DATA SHEET

Customer Service #: (570) 546-9663 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

MODEL H8190 13 HP GASOLINE 3600 PSI PRESSURE WASHER

Product Dimensions:

Machine Size 24"W x 41"D x 19½"H
Machine Weight 133 lbs.

Motor:

Type Gasoline Fueled Internal Combustion
Displacement 389cc
Horsepower 13 HP
Torque 15.5 ft. lbs.
Starter Hand-Pulled Rope
Ignition Transistor Electronic
Recommended Oil Weight SAE 30
Spark Plug NGK B6S

Pump:

Speed 3400 RPM
Maximum Pressure 3600 PSI
Capacity 4 GPM @ 3400 RPM
Power Requirement 13 HP
Recommended Oil Weight SAE 30

Construction:

Cart Steel

Features:

- 34½" spray gun with comfort grip
- 5 quick change spray nozzles 0°, 15°, 25°, 40°, and a low pressure soap/chemical nozzle.
- Wheeled cart for added maneuverability
- Pump thermal overload protection



General Identification

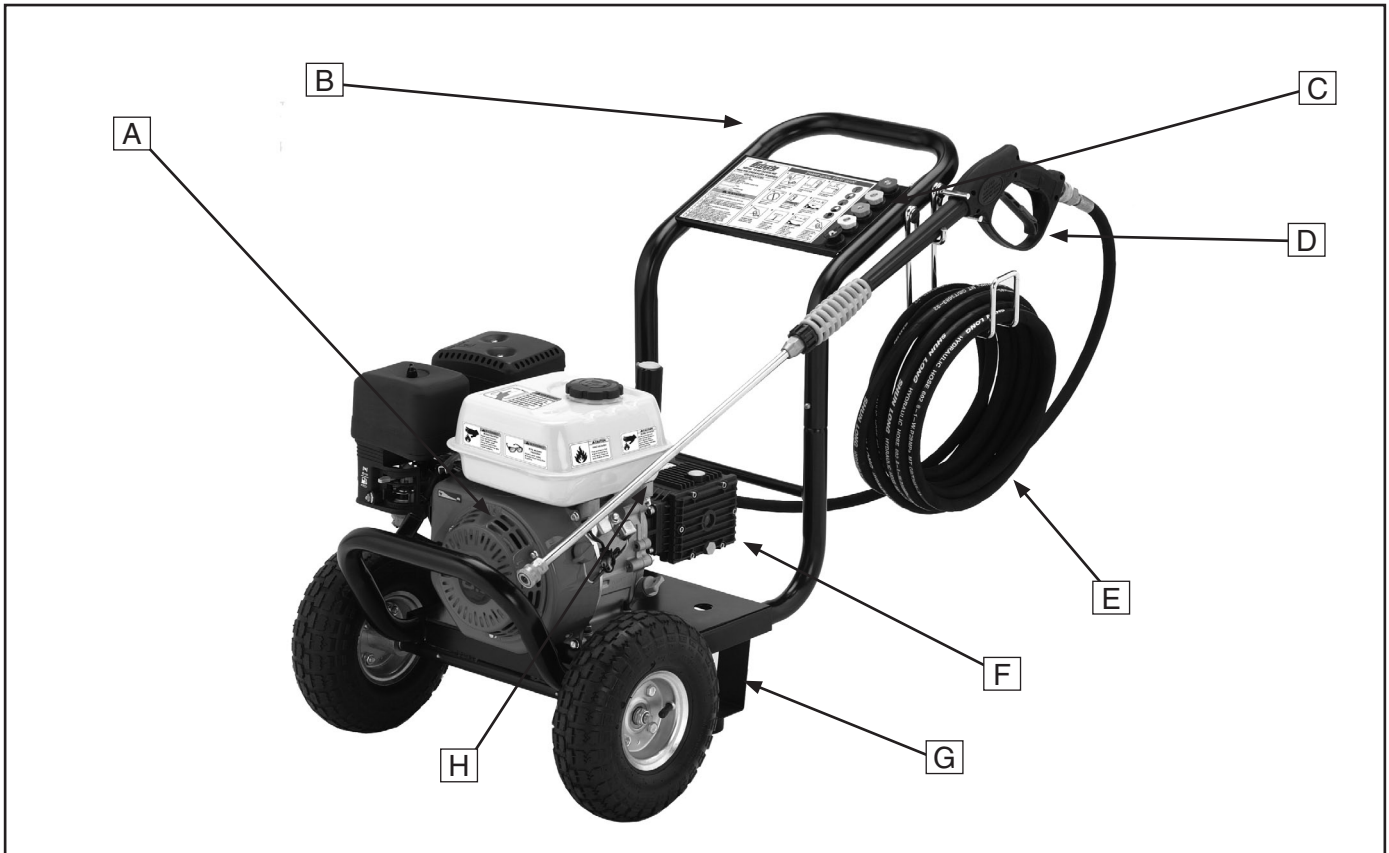


Figure 1. General component identification

- | | |
|---------------------|------------------------------|
| A. Engine | E. High Pressure Hose |
| B. Handle | F. Pump |
| C. Nozzles | G. Frame and Wheels |
| D. Spray Gun | H. Spray Gun Wand |



SECTION 1: SAFETY

WARNING

For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.



Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

WARNING

Safety Instructions for Machinery

- 1. READ THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
- 3. ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Wood dust can cause severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
- 5. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
- 6. NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.



WARNING

Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
9. **MAKE WORKSHOP CHILDPROOF.** Use padlocks, master switches, and remove start switch keys.
10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
11. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
12. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.
13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Undersized cords create excessive heat. Always replace damaged extension cords.
14. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
15. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery **ON**.
18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, and any other conditions that may impair machine operation. Repair or replace damaged parts before operation.
19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. Improper accessories increase risk of injury.
20. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
21. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
22. **DO NOT OVERREACH.** Maintain stability and balance at all times.
23. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY.**
25. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.



WARNING

Additional Safety Instructions for Pressure Washers

- 1. FLUID INJECTION.** This machine operates at fluid pressures and velocities high enough to penetrate human and animal flesh. Should such an injury occur, it may be a surgical emergency. **DO NOT** treat fluid injection as a normal cut, instead, see a physician immediately.
- 2. ADEQUATE VENTILATION.** During operation this machine produces carbon monoxide, which is a poisonous gas. Make sure the work area is adequately ventilated. Never operate this machine indoors.
- 3. COOLING ENGINE.** Motor parts get hot during operation. Allow to cool before placing hands near motor, adding fuel, or performing any service or maintenance.
- 4. FUEL SPILLS.** Fuel exposed to hot engine components may ignite. Thoroughly clean all fuel spills before starting.
- 5. ELECTRICAL OVERSPRAY HAZARD.** Spraying water near electrical outlets, switches, or objects connected to an electrical circuit, could result in a fatal electric shock.
- 6. CHANGING NOZZLES.** Be sure to release water pressure before changing nozzles, or performing any service or maintenance, to reduce the risk of fluid injection injury.
- 7. APPROVED FLUIDS.** Some cleaning fluids could cause injury to skin, eyes, or lungs. Use only cleaning fluids approved for high pressure washers and follow the manufacturer's recommendations. Never spray any corrosive chemicals, poisons, insecticides, or flammable solvents with this machine.
- 8. HOLDING SPRAY GUN.** The reactive force of the spray will cause the gun to move, and could cause the operator to fall or misdirect the spray. Always stand in a stable position, grip the gun firmly with both hands, and do not overreach. Use extreme caution on roofs and ladders and always wear appropriate harnesses and safety equipment.
- 9. SLIPPING HAZARDS.** The use of pressure washers can create puddles and other slippery surfaces. Use extreme caution on these surfaces to reduce the risk of a fall.

WARNING

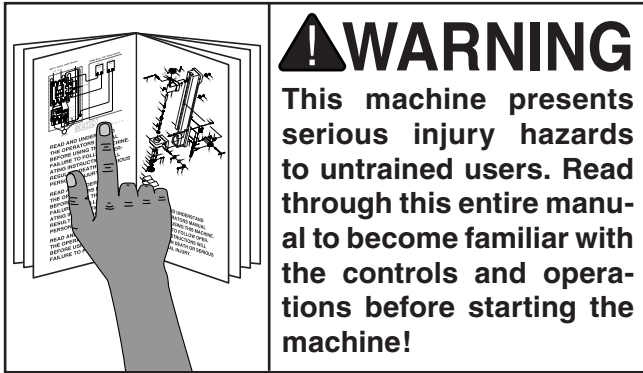
Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.



SECTION 3: SETUP



Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover the machine is damaged, *please immediately call Customer Service at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.

Inventory

The following is a description of the main components shipped with your machine. Lay the components out to inventory them.

Note: *If you can't find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for shipping purposes.*

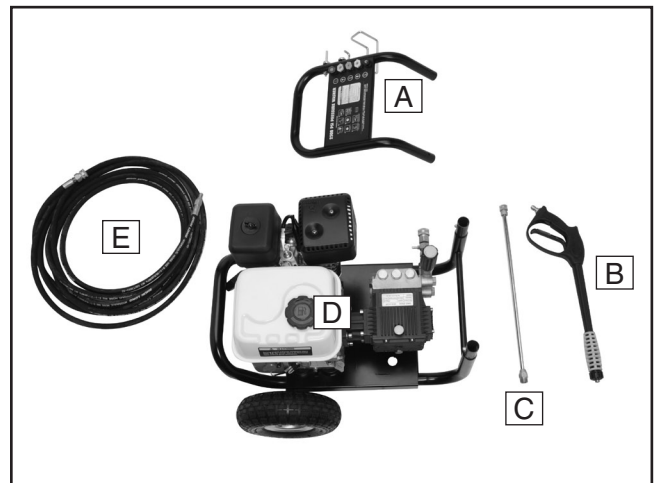


Figure 2. Model H8189/H8190 inventory

H8189/H8190 Inventory (Figure 2)	Qty
A. Handle	1
B. Spray Gun	1
C. Spray Gun Wand	1
D. Pressure Washer	1
E. High Pressure Hose	1
F. Input Hose (Not Shown)	1



Assembly

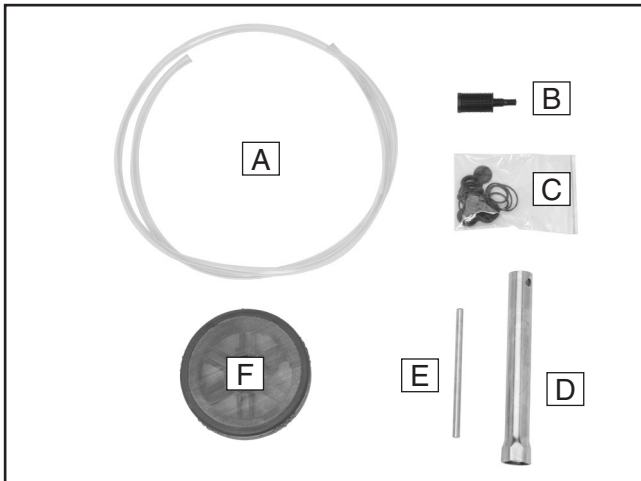


Figure 3. Model H8189/H8190 accessory inventory.

H8189/H8190 Accessory Inventory (Figure 3)

	Qty
A. Chemical Hose	1
B. Chemical Filter	1
C. O-Ring Seal Kit	1
D. Spark Plug Wrench	1
E. Spark Plug Wrench Handle	1
F. Input Source Filter	1
G. Hose Adapter Male to Male (not shown)...	1

Refer to **Figure 1** on **Page 4** for identification of components in the following steps.

To assemble the H8189/H8190:

1. Insert the handle into the frame posts and push down until the securing pins latch in the securing pin holes.

Note: *You may need to push the securing pins in to allow the handle to slide into the frame posts.*

2. Thread the spray gun wand into the spray gun and tighten securely.
3. Connect the male end of the high pressure hose to the pump output quick coupler.
4. Connect the high pressure hose quick coupler to the spray gun.
5. Thread the female end of the input hose onto the pump input port.
6. Connect the other end of the input hose to a spigot providing at least 5 GPM, or to the in-feed source filter, if drawing from a standing water source.

Note: *Depending on the spigot fitting type, you may need to use the provided male-to-male hose adapter to connect the pressure washer to this type of water source.*



SECTION 4: OPERATIONS

Connections and Controls

H8189/H8190 Pump Controls (Figure 4)

- A. Pump Out-Feed
- B. Pressure Adjustment Knob
- C. Chemical Injection Inlet
- D. Pump In-Feed.....

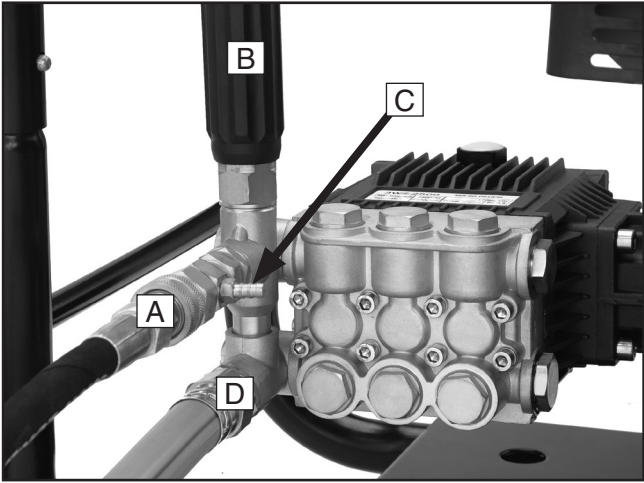


Figure 4. Pump Controls.

H8189/H8190 Engine Controls (Figure 5)

- E. Choke
- F. Fuel Valve
- G. Throttle
- H. Pull-Start Rope
- I. Motor Switch

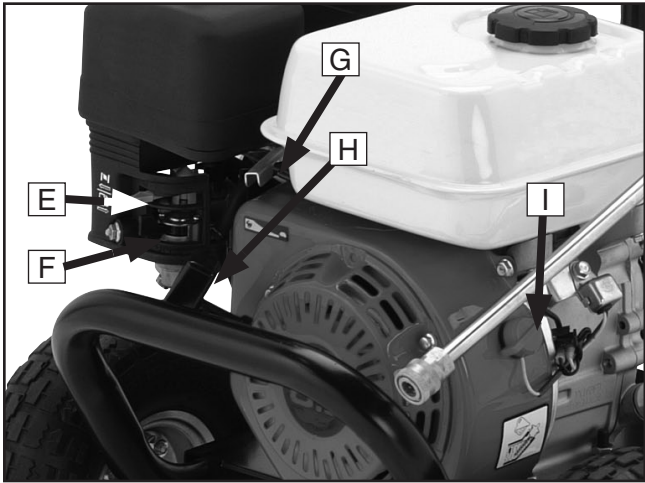


Figure 5. Engine controls.



Break-In

The first 20 hours of operation is considered the break-in period. Be sure to follow the maintenance schedule on **Page 16** after 20 hours of use.

NOTICE

Failure to follow the break-in maintenance schedule can reduce the lifespan of the machine and negatively impact performance.

Adjusting Pressure

⚠️ WARNING

DO NOT attempt to increase the pump pressure by tampering with controls or otherwise altering the machine. A higher pressure setting than the factory set pressure may damage the pump or cause components to fail resulting in serious personal injury.

The pressure setting on the model H8189/H8190 was preset at the factory to achieve optimum pressure for general purpose cleaning. If you need to lower the pressure, it can be accomplished by these methods:

- BACK AWAY FROM THE SURFACE TO BE CLEANED. Moving further away reduces the pressure on the workpiece.
- SELECT A DIFFERENT NOZZLE. Nozzles with a wider angled spray deliver a less powerful stream.
- ADJUST THE PRESSURE REGULATOR ON THE PUMP. Turn the pressure regulator knob counter-clockwise to lower the pressure (**Figure 6**). Once you have finished using your pressure washer, return the regulator to its original position by turning it clockwise.

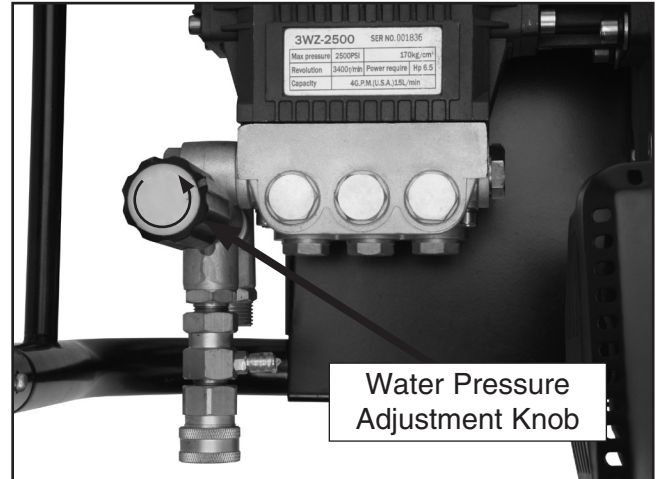


Figure 6. Reducing the pump pressure.

- REDUCE ENGINE SPEED. Slowing the engine will reduce the pressure created by the pump.

NOTICE

Engine speed should always be set high enough to handle the load of the pump. If the engine speed is too low, the motor may bog or stop when the spray gun trigger is pulled and the pump is activated. Operating the engine speed at such a setting can cause excessive engine wear and premature engine failure.

Changing Nozzles

The model H8189/H8190 pressure washer is equipped with five spray nozzles located in receptacles on the front panel. Each nozzle is color coded and delivers a specific spray pattern for a particular cleaning purpose. The size of the nozzle determines the shape and pressure of the spray. The 0°, 15°, 25°, and 40° nozzles are high pressure nozzles; the chemical nozzle is a low pressure nozzle.

To change nozzles on the H8189/H8190:

1. FOLLOW THE SHUTDOWN PROCEDURE ON **PAGE 14!**



2. Pull the trigger on the spray gun to release water pressure. Be sure that all pressurized water has been released before removing a nozzle.
3. Pull back the quick connect coupler on the end of the spray gun wand and remove the current nozzle.
4. Select a nozzle and with the quick connect coupler on the spray gun wand pulled back, insert the nozzle (**Figure 7**).



Figure 7. Inserting a nozzle.

5. Release quick connect coupler and twist nozzle to make sure it is secure in the coupler.

! WARNING

Always double-check coupler connections on all fittings. Improperly connected fittings can blow apart under pressure causing severe personal injury and/or equipment damage.

NOTICE

Always try a nozzle on a small test area or piece of test material to determine if it is the correct nozzle for the task. Some nozzles provide so much pressure they can destroy even sturdy materials.

Nozzles:

0° Red Nozzle

This nozzle delivers an extremely powerful pinpoint stream that covers a very small cleaning area.

15° Yellow Nozzle

This nozzle delivers a powerful 15° spray pattern for intense cleaning of small areas.

25° Green Nozzle

This nozzle delivers a 25° spray pattern for intense cleaning of larger areas.

40° White Nozzle

This nozzle delivers a 40° spray pattern and a less powerful stream of water. It covers a wide area of cleaning.

Chemical Black Nozzle

This nozzle is used to apply chemicals or cleaning solutions. It has the least powerful stream.

Applying Chemicals

! WARNING

Use only household detergents, cleaners, and degreasers recommended for use in pressure washers. NEVER use toxic or corrosive chemicals, acids, poisons, insecticides, or flammable solvents such as gasoline or kerosene with your pressure washer. Failure to follow this warning could result in machine failure, significant property damage, severe personal injury, or death.

! CAUTION

Applying chemicals or cleaning solvents is a low pressure operation. Use only the chemical nozzle to apply chemicals or solvents.



NOTICE

Chemicals left in the pressure washer can damage the pump and void the warranty. Always rinse the unit thoroughly by running clean water through the chemical hose after using chemicals or cleaning solvents.

To apply chemicals:

1. Push the chemical hose onto the barbed fitting located near the pump water outlet as shown in **Figure 8**.

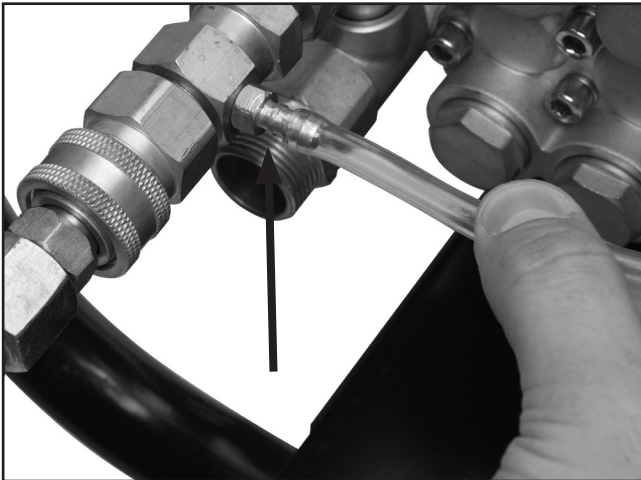


Figure 8. The attached chemical hose.

2. Push the other end of the chemical hose onto the chemical hose filter (**Figure 9**) and fully submerge in a container holding the chemical or cleaning solution.



Figure 9. The attached chemical hose filter.

3. Connect the low pressure chemical nozzle to the spray gun as described on **Page 13**.
4. After use of chemicals or cleaning solutions, draw clean water through the chemical hose and pressure washer to rinse the internal components.

Standing Water Source

To draw water from a standing source:

1. Attach the supplied input hose filter to the input hose and place the input hose filter in the standing water source.

Note: Be sure the water source is free from debris which could clog the filter and cause a loss of water flow.

2. Prime the pump by pouring water into the other end of the input hose (the end without the filter) while the filter end is submerged in the water source. Without spilling water out of the hose, connect the input hose to the input port on the pump.

Note: Be sure the water source is large enough to provide 5 GPM of flow for the duration of the pressure washer operation.

NOTICE

If the pump is not able to provide pressurized water when drawing from a standing water source, shutdown the pressure washer immediately and re-attempt to prime the pump. Failure to follow this instruction can damage the pump and void the warranty.



Spray Gun Lock

The spray gun has a lockout lever that can be engaged to prevent accidental discharge. This feature is especially useful when climbing up a ladder or doing any work that might accidentally discharge the spray gun. To engage the lockout lever, simply flip it away from the trigger and clip it into the lockout lever groove in the handle (**Figure 10**). To release the lever, reverse this procedure (**Figure 11**).



Figure 10. The spray gun in the locked position.



Figure 11. The spray gun in the unlocked position.

Starting

⚠️ WARNING

Operation of this equipment has the potential to propel debris into the air which can cause eye injury. Always wear safety glasses or goggles when operating equipment. Everyday glasses or reading glasses only have impact resistant lenses, they are not safety glasses. Be certain the safety glasses you wear meet the appropriate standards of the American National Standards Institute (ANSI).

To start the H8189/H8190 pressure washer:

1. Check the engine and pump oil level and fuel level (refer to the **MAINTENANCE** section beginning on **Page 16** for locations). Add engine oil (SAE 30) and/or fuel (unleaded gasoline) if necessary.

2. Securely fasten one end of the provided input hose to a threaded hose spigot. Securely fasten the other end of the input hose to the pump input port.

Note: When drawing water from a standing source, follow the standing source instructions on **Page 15**. When drawing water from a spigot, you may need to use the provided male-to-male hose adapter.

3. Make sure the spray gun is securely connected to the high pressure hose, and that the high pressure hose is securely connected to the pump output port.
4. Attach the appropriate nozzle to the quick coupler at the end of the spray gun wand, and turn on the water supply at the spigot.

NOTICE

Never allow the motor to run without a water source connected to the pump. Failure to follow this instruction will damage the pump and void the warranty.



5. Turn the motor switch to the **ON** position
6. Set the fuel valve to the **OPEN** position.
7. Engage the choke (if cold starting) and set the throttle to $\frac{3}{4}$ open.
8. Squeeze the spray gun trigger until a steady stream of water comes out, then release.
10. Pull the start rope to start the motor.

Note: For best pull-starting results, pull the start rope with forceful, but even pressure to spin the motor.

CAUTION

When pull-starting, pull the start rope slowly until resistance is felt, then pull with forceful, even pressure. Rapidly jerking the start rope can cause it to forcefully recoil, potentially causing hand and/or arm injury.

11. Allow the motor to run long enough to achieve normal operating temperature (at least two minutes), then set the throttle to the desired speed.
12. Pull the trigger on the spray gun to release pressurized water and begin work.

Note: If the motor does not start after several pulls of the start rope, or brief turns of the start switch, repeat the starting instructions from **Step 8**. If you are still unable to start the motor, refer to the **troubleshooting** guide on **Page 20**.

NOTICE

Never allow the motor to run for more than five minutes without pulling the trigger on the spray gun to release water. Failure to follow this instruction can damage the pump and void the warranty.

Shutdown Procedure

To shut down the pressure washer:

1. Release the trigger on the spray gun and return the spray gun to the bracket on the washer handle.
2. Turn the pressure adjustment knob counterclockwise until there is no more pressure.
3. Close the fuel valve.
4. Switch the motor to the **OFF** position.
5. Shut off the water at the spigot, or remove the input hose from the water if drawing from a standing source. Purge the pressure from the system by pulling the spray gun trigger.

NOTICE

To reduce the risk of damaging engine components, **DO NOT** stop the engine abruptly when it is running under load.



SECTION 4: ACCESSORIES

H8118—Spot Sandblaster

This spot sandblaster is the quickest, cleanest way to remove rust spots, peeling paint, or surface blemishes without disturbing the surrounding area. Supplied with 4 nozzles that allow you to spot blast inside corners, outside corners, edges, and flat areas for perfect surface prep.



Figure 12. Model H8118 Spot Sandblaster.

G7142—Long Rubber Gloves

Industrial strength rubber gloves with 11" cuffs protect from finger tip to elbow. Positive grip on hands and fingers. Alkali and acid resistant.



Figure 13. Model G7142 Sandblasting Gloves.

G9927 and H3143—Wax Buffer

Wax the car in a jiffy with this buffer/polisher system. The pad duplicates hand polishing with a random orbit rotation. Kit includes a wax application bonnet and a terrycloth polishing bonnet. Safe for all types of finishes, gives a beautiful swirl free result.



Figure 14. Models G9927 and H3143 Wax Buffers.

H3265—24" Blow Gun

Get into hard-to-reach areas with this 24" long Blow Gun. Includes rubber tip. 1/4" female NPT.

H3261—5 pc. Air Blow Kit

This chrome plated, brass body Air Blow Gun includes five different tips for all normal air cleaning jobs. 1/4" NPT air inlet.

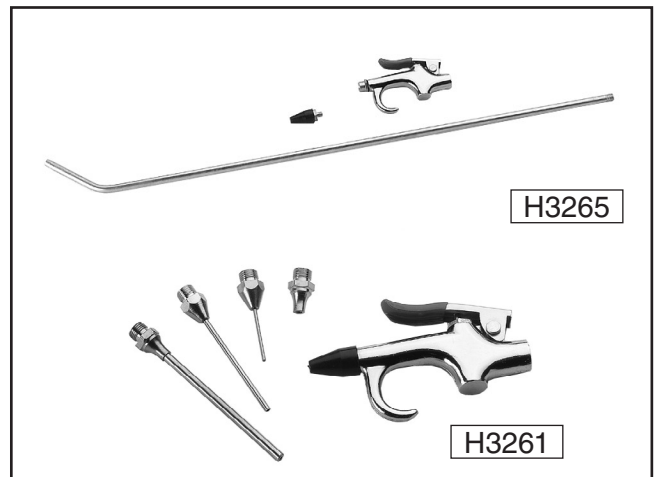


Figure 15. Model H3265 and H3261 air tools.

Call 1-800-523-4777 To Order



SECTION 6: MAINTENANCE

⚠️ WARNING

Always release water pressure and allow engine to cool before performing any service or maintenance. Failure to follow this warning can result in severe burns and/or fluid injection injuries.

NOTICE

Operating machinery in harsh conditions may require more frequent maintenance. The maintenance schedule below is merely a guideline for general use. If you operate your machine in extremely hot, cold, or dusty conditions, change oils and clean or replace filters with increased frequency.

Schedule

For optimum performance from your machine, follow this maintenance schedule and refer to any specific instructions given in this section.

<i>Interval</i>	Daily	Every 20 hours or 1 month	Every 100 hours or 3 months	Every 500 hours or 6 months	Every 1000 hours or 12 months
Check and tighten bolts	X				
Check for worn or damaged wires	X				
Check for oil/fuel leaks	X				
Check engine oil	X				
Change engine oil		X (First Time-Break In)	X		
Check pump oil	X				
Change pump oil		X (First Time-Break In)	X		
Clean outer air filter		X			
Clean filter core		X			
Replace filter core				X	
Clean fuel tank					X
Check Spark Plug Gap			X		

Figure 16. Maintenance schedule



General Maintenance

Before each use, perform the following general maintenance tasks:

1. Check the engine oil and fuel level
2. Check the engine for cracked fuel lines, loose bolts, and any other excessively worn or damaged parts. Repair or replace worn or damaged parts as necessary. Tighten any loose bolts.
3. Check the high pressure hose for leaks. Replace if necessary.
4. Inspect the spray gun and nozzles for clogged debris and/or damage. Clean any debris with a garden hose and replace any damaged parts.
5. Inspect the chemical injection hose and filter for clogged debris and/or damage. Clean any debris with a garden hose and replace any damaged parts.

Engine Oil Change

Replace the engine oil once after 20 hours, and then regularly every 100 hours or 3 months (more frequently in harsh conditions).

To change the engine oil:

1. FOLLOW SHUTDOWN PROCEDURE AND ALLOW ENGINE TO COOL!
2. Loosen the dipstick/oil cap.
3. Remove the drain plug on the side of the engine (**Figure 17**) and allow oil to drain through the hole in the frame into a catch basin.

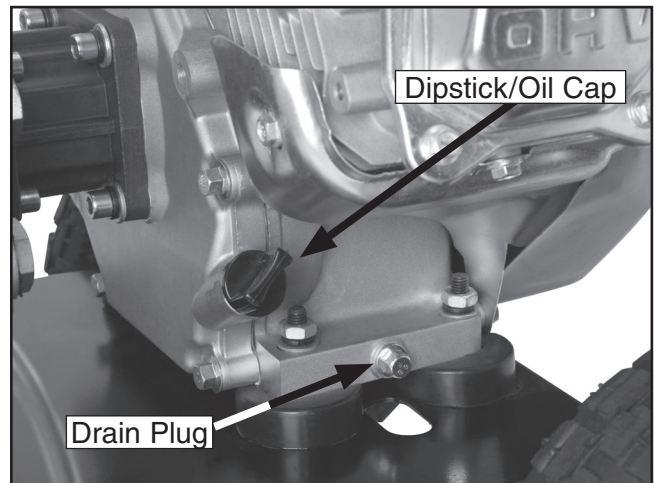


Figure 17. Motor maintenance points.

4. Allow the oil to drain for several minutes until all the oil has drained from the crankcase.
5. Fasten the drain plug securely.
6. Remove the dipstick/oil cap and fill with SAE 30 motor oil checking the level on the dipstick frequently until full (**Figure 18**). Do not over-fill.

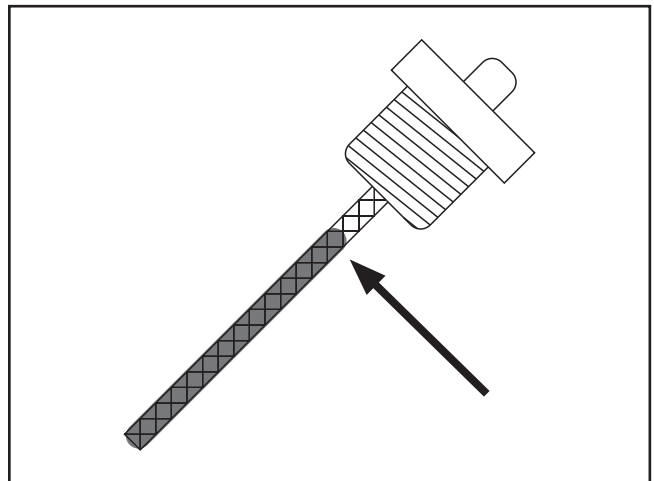


Figure 18. Correct engine oil level on the dipstick.

7. Tighten the dipstick/oil cap.
8. Dispose of the used oil in accordance with local regulations.



Pump Oil Change

Replace the pump oil once after 20 hours, and then regularly every 100 hours or 3 months.

To change the pump oil:

1. FOLLOW SHUTDOWN PROCEDURE AND ALLOW ENGINE TO COOL!
2. Loosen the oil cap (**Figure 19**).
3. Place a container under the oil drain plug (**Figure 19**).

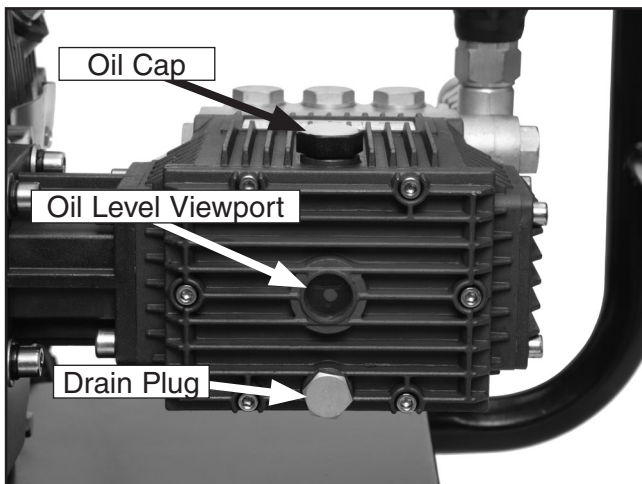


Figure 19. The pump oil cap and drain plug.

4. Remove the oil drain plug.
5. After all the oil has drained, replace the oil drain plug and tighten securely.
6. Remove the oil cap and fill with SAE 30 oil. Add oil slowly and check the level frequently. The pump is full when oil is just past the red dot, covering the lower $\frac{2}{3}$ of the viewing port (**Figure 20**). Do not overfill.

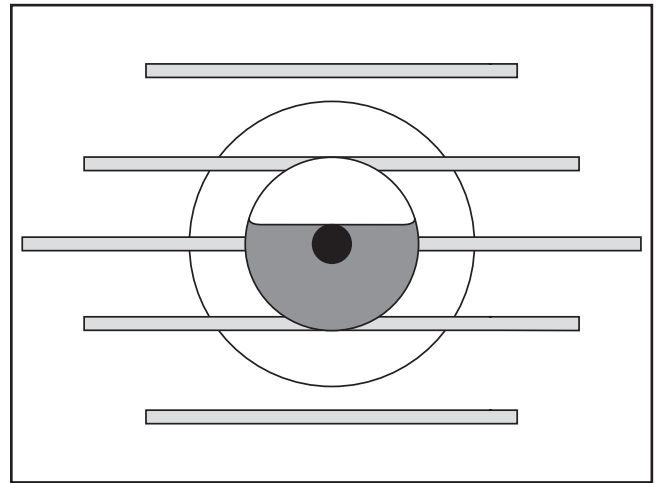


Figure 20. The correct pump oil level in the viewport.

7. Replace the oil cap and tighten securely.
8. Dispose of the used oil in accordance with local regulations.



Air Filter Service

Clean the outer air filter element every 20 hours or 1 month (more frequently in harsh conditions).

To clean the outer air filter element:

1. FOLLOW SHUTDOWN PROCEDURE AND ALLOW ENGINE TO COOL!
2. Remove the air filter cover by first removing the air filter cover wing nut.
3. Remove the wing nut and washer holding the air filter in place and remove the air filter assembly (**Figure 21**).



Figure 21. Removing the air filter.

4. Remove the outer foam air filter element.
5. Clean the outer element thoroughly with solvent and allow to dry.
6. Saturate the outer element with fresh motor oil, then squeeze with a cloth to remove any excess oil.
7. Replace the outer air filter element, then replace the air filter assembly, filter wing nut, filter cover, and filter cover wing nut.

Note: To clean the air filter core, DO NOT use solvent or any other cleaning solution. Instead, use a soft brush to remove any particulate build-up.

Spark Plug Adjustment and Replacement

Check the spark plug gap and adjust it if necessary after every 100 hours of operation or 3 months.

To adjust the spark plug gap:

1. Disconnect the plug wire. With the provided spark plug tool, remove the spark plug.
2. Carefully inspect the plug for signs of wear. If there is pronounced coloration, excessive corrosion or deposits, or damage to any component of the plug, replace it.
3. Using a spark plug gap gauge (available at most automotive stores), measure the current spark plug gap.

Note: The gap is the distance between the side electrode and the center electrode (**Figure 22**).

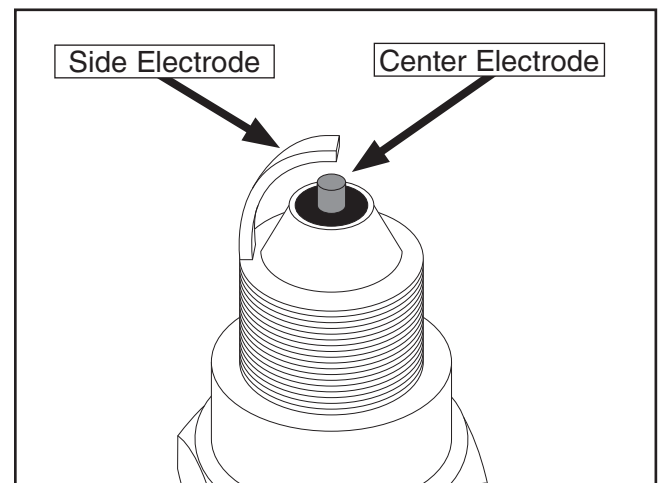


Figure 22. The spark plug electrode gap.

4. Using a flat blade screw driver or similar tool, bend the side electrode up or down as necessary to achieve the correct spark plug gap of 0.7-0.8mm. Take care not to damage the plug when doing this.
5. Reinstall the plug with the provided spark plug tool and reconnect the spark plug wire.

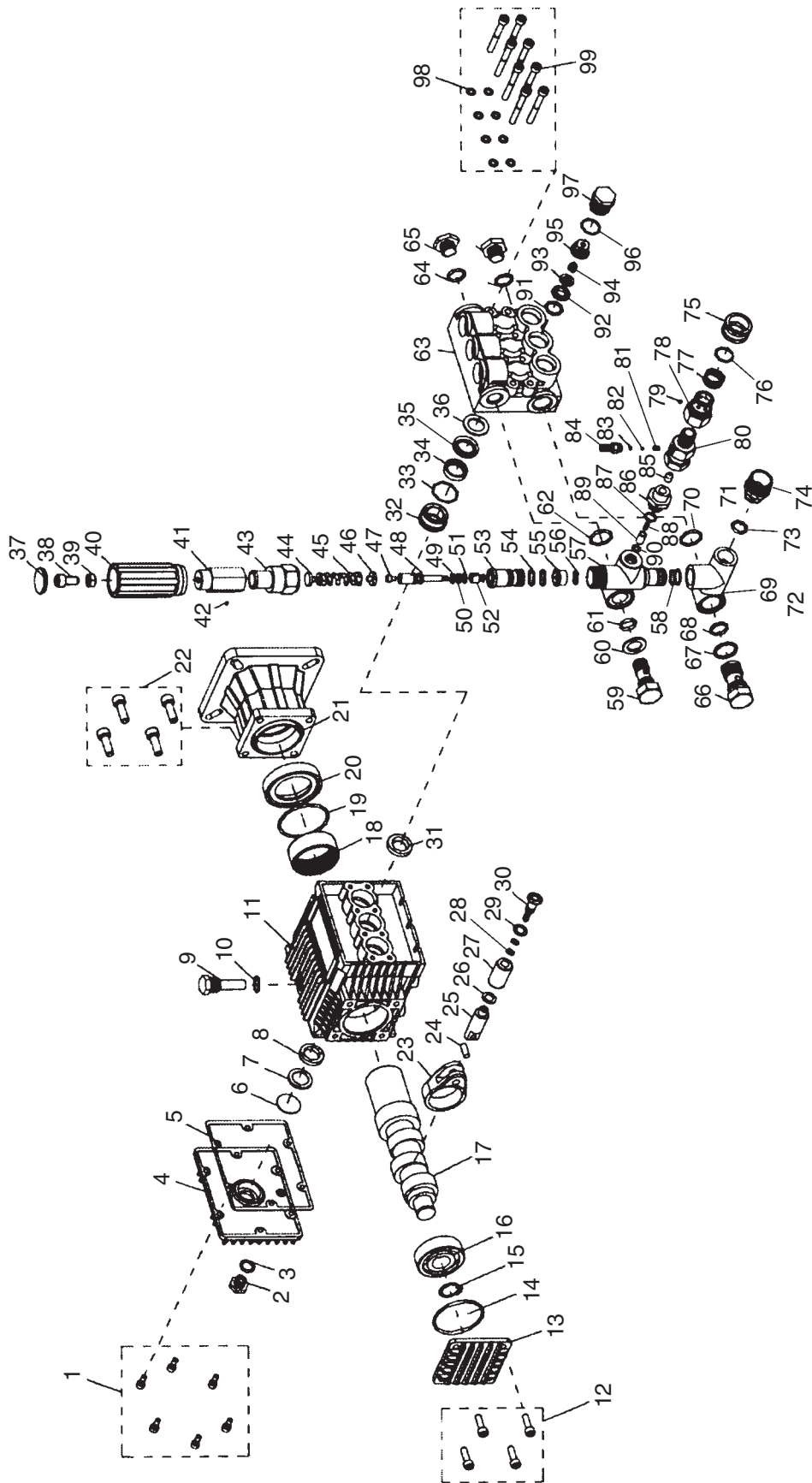


Troubleshooting

Symptom	Possible Cause	Solution
Engine won't start.	<ol style="list-style-type: none"> 1. Fuel tank is empty. 2. Fuel valve is closed. 3. Spark plug wire is not attached. 4. Spark plug is fouled. 5. Air filter is clogged. 6. Water pressure has built up in the pump. 7. Internal engine components have failed. 	<ol style="list-style-type: none"> 1. Add fuel. 2. Open fuel valve. 3. Attach spark plug wire. 4. Replace spark plug. 5. Clean air filter. 6. Release water pressure by squeezing spray gun trigger. 7. Refer to engine manual and/or see a qualified technician for repair.
Engine starts, but runs poorly.	<ol style="list-style-type: none"> 1. Engine speed is too slow. 2. The fuel line is clogged. 3. The fuel valve is partially closed. 4. Low quality or contaminated fuel. 5. Air filter is dirty. 6. Internal engine components are worn or have failed. 	<ol style="list-style-type: none"> 1. Increase throttle setting. 2. Clear the fuel lines. 3. Fully open the fuel valve. 4. Replace with a clean, quality, unleaded gasoline. 5. Clean air filter. 6. Refer to a qualified technician.
No, or low, water pressure.	<ol style="list-style-type: none"> 1. Low water supply. 2. Low pressure nozzle attached. 3. Leak at high pressure hose fitting. 4. Water filter screen clogged. 5. Engine is not in high throttle position. 6. High pressure hose is too long. 7. Engine or pump components are worn or have failed. 	<ol style="list-style-type: none"> 1. Water supply must flow at least 5 GPM. 2. Attach a higher pressure nozzle. 3. Tighten or replace fitting as necessary. 4. Remove and clean filter. 5. Increase engine speed with throttle lever. 6. Use high pressure hose under 100 ft. 7. Refer a qualified technician for repair.
Will not draw chemicals.	<ol style="list-style-type: none"> 1. Spray gun does not have low pressure nozzle attached. 2. Chemical filter clogged. 3. Chemical hose and filter not fully submerged in chemical. 4. Chemical is too thick. 	<ol style="list-style-type: none"> 1. Attach low pressure nozzle. 2. Clean filter. 3. Be sure chemical hose and filter stay fully submerged in chemical. 4. Dilute chemical. Chemicals should be the consistency of water.



H8189 Pump Parts Breakdown



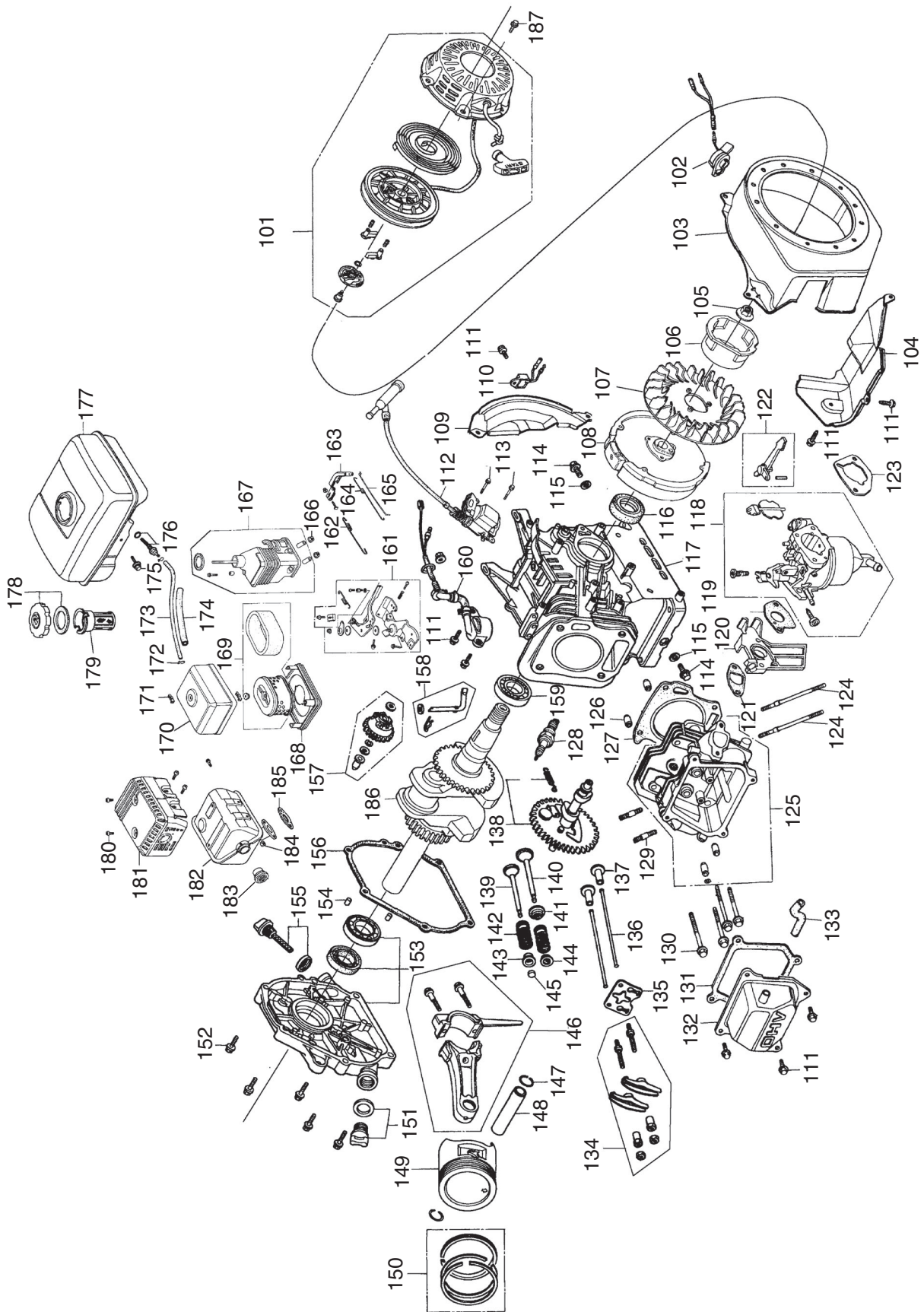
H8189 Pump Parts List

REF	PART #	DESCRIPTION
1	PH8189001	CRANK CASE COVER BOLT
2	PH8189002	OIL DRAIN PLUG
3	PH8189003	OIL DRAIN PLUG WASHER
4	PH8189004	CRANK CASE COVER
5	PH8189005	CRANK CASE COVER GASKET
6	PH8189006	SIGHT GLASS
7	PH8189007	SIGHT GLASS GASKET
8	PH8189008	SIGHT GLASS CAP
9	PH8189009	OIL INLET PLUG
10	PH8189010	OIL INLET PLUG GASKET
11	PH8189011	CRANK CASE
12	PH8189012	CRANK SHAFT COVER BOLT
13	PH8189013	CRANK SHAFT COVER
14	PH8189014	BEARING COVER GASKET
15	PH8189015	BEARING CLIP
16	PH8189016	BALL BEARING
17	PH8189017	CRANKSHAFT
18	PH8189018	NEEDLE ROLLER BEARING
19	PH8189019	FLANGE RING
20	PH8189020	CRANK SHAFT GASKET
21	PH8189021	FLANGE
22	PH8189022	FLANGE BOLT
23	PH8189023	CONNECTING ROD
24	PH8189024	CONNECTING ROD PIN
25	PH8189025	PLUNGER ROD
26	PH8189026	COPPER WASHER
27	PH8189027	CERAMIC PLUNGER
28	PH8189028	PLUNGER CAP SCREW RING
29	PH8189029	COPPER WASHER
30	PH8189030	PLUNGER CAP SCREW
31	PH8189031	LOCATING RING
32	PH8189032	LOCATING RING WATER SEAL
33	PH8189033	LOCATING RING GASKET
34	PH8189034	U-PACKING RING
35	PH8189035	U-PACKING
36	PH8189036	U-PACKING SEAT
37	PH8189037	HANDLE COVER
38	PH8189038	PRESSURE ADJUSTMENT SCREW
39	PH8189039	ADJUSTMENT SCREW FIXED NUT
40	PH8189040	PRESSURE ADJUSTMENT HANDLE
41	PH8189041	PRESSURE ADJUSTMENT SEAT
42	PH8189042	PRESSURE ADJUSTMENT FIXED SCREW
43	PH8189043	PRESSURE ADJUSTMENT VALVE
44	PH8189044	UPPER SPRING WASHER
45	PH8189045	PRESSURE ADJUSTMENT SPRING
46	PH8189046	LOWER SPRING WASHER
47	PH8189047	ADJUSTMENT VALVE SCREW
48	PH8189048	WATER RETURN VALVE ROD
49	PH8189049	VALVE JACKET INNER GASKET
50	PH8189050	ADJUSTMENT VALVE SEAT

REF	PART #	DESCRIPTION
51	PH8189051	VALVE JACKET INNER GASKET
52	PH8189052	WATER RETURN VALVE CORE
53	PH8189053	WATER RETURN VALVE JACKET
54	PH8189054	VALVE JACKET OUTER GASKET
55	PH8189055	WATER RETURN VALVE SEAT
56	PH8189056	VALVE SEAT GASKET
57	PH8189057	WATER OUTLET T-CONNECTOR
58	PH8189058	T-CONNECTOR GASKET
59	PH8189059	OUTLET T-CONNECTOR FIXED BOLT
60	PH8189060	FIXED BOLT WASHER
61	PH8189061	FIX BOLT GASKET
62	PH8189062	OUTLET T-CONNECTOR GASKET
63	PH8189063	CYLINDER
64	PH8189064	SCREW GASKET
65	PH8189065	SCREW CAP
66	PH8189066	INLET T-CONNECTOR GASKET
67	PH8189067	BOLT WASHER
68	PH8189068	INLET T-CONNECTOR GASKET
69	PH8189069	WATER INLET T-CONNECTOR
70	PH8189070	INLET T-CONNECTOR GASKET
71	PH8189071	INLET SCREW GASKET
72	PH8189072	INLET SCREW
73	PH8189073	WATER INLET CONNECTOR SEAL GASKET
74	PH8189074	WATER INLET CONNECTOR
75	PH8189075	QUICK CONNECTOR CAP
76	PH8189076	BEARING CLIP
77	PH8189077	QUICK CONNECTOR GASKET
78	PH8189078	QUICK CONNECTOR
79	PH8189079	STEEL BALL
80	PH8189080	DETERGENT INJECTOR
81	PH8189081	INJECTOR SPRING
82	PH8189082	DETERGENT INJECTOR GASKET
83	PH8189083	STEEL BALL
84	PH8189084	INJECTOR NOZZLE
85	PH8189085	WATER SHOOTING NOZZLE
86	PH8189086	WATER OUTLET JOINT
87	PH8189087	WATER OUTLET JOINT GASKET
88	PH8189088	WATER OUTLET CONE VALVE SPRING
89	PH8189089	WATER OUTLET CONE VALVE
90	PH8189090	WATER OUTLET CONE VALVE GASKET
91	PH8189091	CHECK VALVE GASKET
92	PH8189092	CHECK VALVE WASHER
93	PH8189093	CHECK VALVE FLAKE
94	PH8189094	CHECK VALVE SPRING
95	PH8189095	CHECK VALVE BOX
96	PH8189096	COMPACTION CAP SEAL GASKET
97	PH8189097	CHECK VALVE COMPACTION CAP
98	PH8189098	CYLINDER BOLT WASHER
99	PH8189099	CYLINDER BOLT



H8189 Engine Parts Breakdown



H8189 Engine Parts List

REF	PART #	DESCRIPTION
101	PH8189101	RECOIL STARTER ASSEMBLY
102	PH8189102	ENGINE SWITCH
103	PH8189103	FAN COVER
104	PH8189104	SHROUD
105	PH8189105	FLANGE NUT M14-2
106	PH8189106	STARTER PULLEY
107	PH8189107	COOLING FAN
108	PH8189108	FLYWHEEL
109	PH8189109	SIDE PLATE
110	PH8189110	DIODE
111	PFB01M	FLANGE BOLT M6-1 X 12
112	PH8189112	IGNITION COIL ASSEMBLY
113	PH8189113	FLANGE BOLT M6-1 X 25
114	PH8189114	DRAIN PLUG
115	PH8189115	DRAIN PLUG WASHER
116	PH8189116	OIL SEAL
117	PH8189117	CRANK CASE ASSEMBLY
118	PH8189118	CARBURETOR ASSEMBLY
119	PH8189119	CARBURETOR PACKING
120	PH8189120	CARBURETOR INSULATOR
121	PH8189121	INSULATOR GASKET
122	PH8189122	CHOKE LEVER
123	PH8189123	AIR FILTER GASKET
124	PH8189124	CYLINDER HEAD STUD
125	PH8189125	CYLINDER HEAD ASSEMBLY
126	PH8189126	DOWEL PIN 10 X 16
127	PH8189127	CYLINDER HEAD GASKET
128	PH8189128	SPARK PLUG
129	PH8189129	STUD
130	PH8189130	FLANGE BOLT M8-1.25 X 60
131	PH8189131	VALVE COVER GASKET
132	PH8189132	VALVE COVER
133	PH8189133	PCV TUBE
134	PH8189134	ROCKER VALVE ASSEMBLY
135	PH8189135	PUSH ROD GUIDE PLATE
136	PH8189136	PUSH ROD
137	PH8189137	VALVE LIFTER
138	PH8189138	CAMSHAFT ASSEMBLY
139	PH8189139	EXHAUST VALVE
140	PH8189140	INTAKE VALVE
141	PH8189141	VALVE SPRING SEAT
142	PH8189142	VALVE SPRING
143	PH8189143	EXHAUST VALVE SPRING RETAINER
144	PH8189144	INTAKE VALVE SPRING RETAINER

REF	PART #	DESCRIPTION
145	PH8189145	VALVE ROTATOR
146	PH8189146	CONNECTING ROD ASSEMBLY
147	PH8189147	WRIST PIN CLIP
148	PH8189148	WRIST PIN
149	PH8189149	PISTON
150	PH8189150	PISTON RING SET
151	PH8189151	OIL CAP
152	PH8189152	FLANGE BOLT M8-1.25 X 32
153	PH8189153	CRANKCASE COVER ASSEMBLY
154	PH8189154	DOWEL PIN 8X 14
155	PH8189155	DIPSTICK ASSEMBLY
156	PH8189156	CRANKCASE GASKET
157	PH8189157	GOVERNOR ASSEMBLY
158	PH8189158	GOVERNOR ASSEMBLY SHAFT
159	PH8189159	RADIAL BALL BEARING 6025
160	PH8189160	OIL LEVEL SWITCH ASSEMBLY
161	PH8189161	THROTTLE LEVER ASSEMBLY
162	PH8189162	GOVERNOR SPRING
163	PH8189163	GOVERNOR ARM
164	PH8189164	THROTTLE RETURN SPRING
165	PH8189165	GOVERNOR ROD
166	PN01M	HEX NUT M6-1
167	PH8189167	AIR FILTER CASE
168	PH8189168	AIR FILTER SEPARATOR
169	PH8189169	AIR FILTER ELEMENT
170	PH8189170	AIR FILTER COVER
171	PH8189171	WIND NUT M6-1
172	PH8189172	HOSE CLAMP
173	PH8189173	FUEL LINE
174	PH8189174	RUBBER PAD
175	PH8189175	FLANGE BOLT M6-1 X 25
176	PH8189176	FUEL TANK PICK-UP TUBE
177	PH8189177	FUEL TANK
178	PH8189178	FUEL FILLER CAP
179	PH8189179	FUEL FILTER
180	PS05M	PHLP HD SCR M5-.8 X 8
181	PH8189181	MUFFLER GUARD
182	PH8189182	MUFFLER
183	PH8189183	SPARK ARRESTER
184	PN03M	HEX NUT M8-1.25
185	PH8189185	EXHAUST PIPE GASKET
186	PH8189186	CRANKSHAFT ASSEMBLY
187	PH8189187	FLANGE BOLT M6-1 X 8



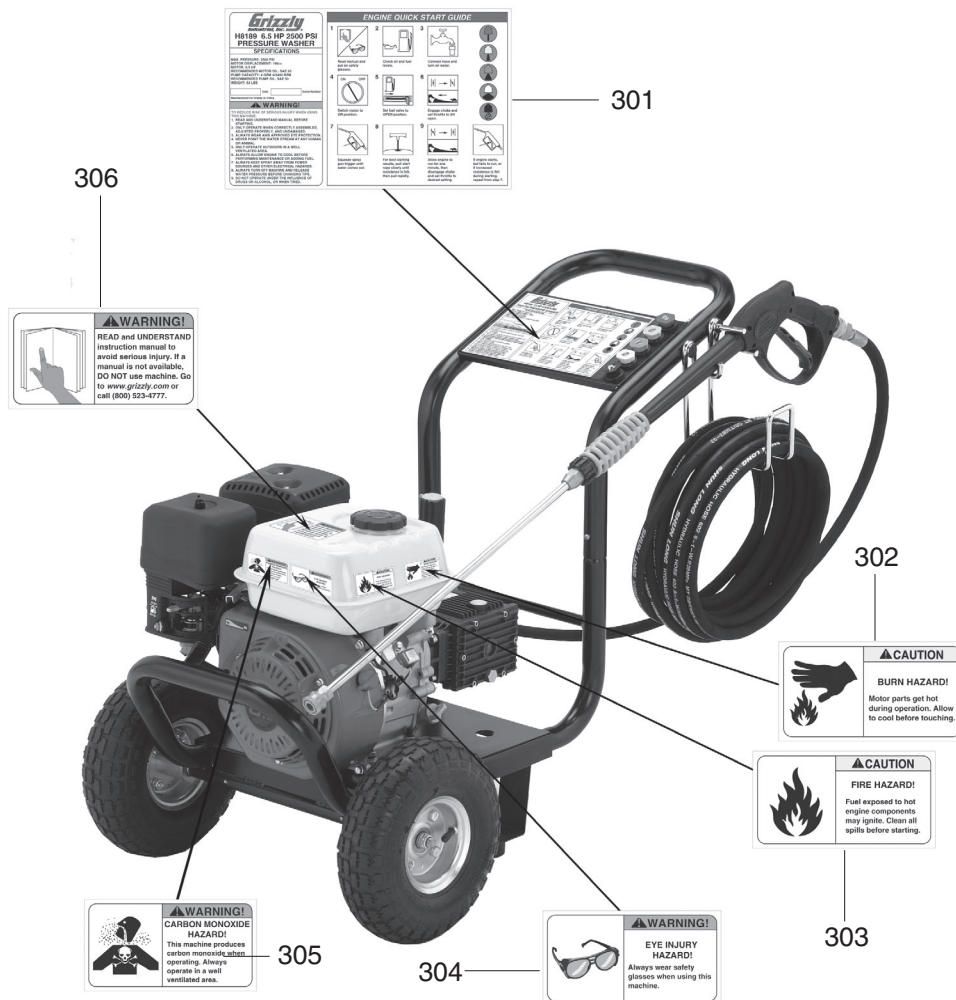
H8189 Frame and Accessories Parts List

REF	PART #	DESCRIPTION
201	PH8189201	O-RING KIT
202	PH8189202	0 DEGREE NOZZLE
203	PH8189203	15 DEGREE NOZZLE
204	PH8189204	25 DEGREE NOZZLE
205	PH8189205	40 DEGREE NOZZLE
206	PH8189206	CHEMICAL NOZZLE
207	PH8189207	CHEMICAL FILTER
208	PH8189208	CHEMICAL HOSE
209	PH8189209	HIGH PRESSURE HOSE
210	PH8189210	INPUT HOSE
211	PH8189211	INPUT HOSE FILTER
212	PH8189212	SPRAY GUN AND WAND ASSEMBLY
213	PN03M	HEX NUT M8-1.25
214	PW01M	FLAT WASHER 8MM

REF	PART #	DESCRIPTION
215	PH8189215	SPRAY GUN BRACKET
216	PH8189216	FRAME ASSEMBLY
217	PN09M	HEX NUT M12-1.75
218	PH8189218	WHEEL ASSEMBLY
219	PH8189219	AXLE
220	PH8189220	RUBBER PAD
221	PSB74M	CAP SCREW M6-1 X 18
221-1	PN01M	HEX NUT M6-1
222	PN02M	HEX NUT M10-1.5
223	PLW06M	LOCK WASHER 10MM
224	PW04M	FLAT WASHER 10MM
225	PH8189225	RUBBER PAD
226	PH8189226	HEX BOLT M10-1.5 60



H8189 Machine Labels Breakdown



REF PART #	DESCRIPTION
301	PH8189301 MACHINE ID LABEL
302	PH8189302 HOT SURFACES WARNING LABEL
303	PH8189303 FLAMABLE WARNING LABEL

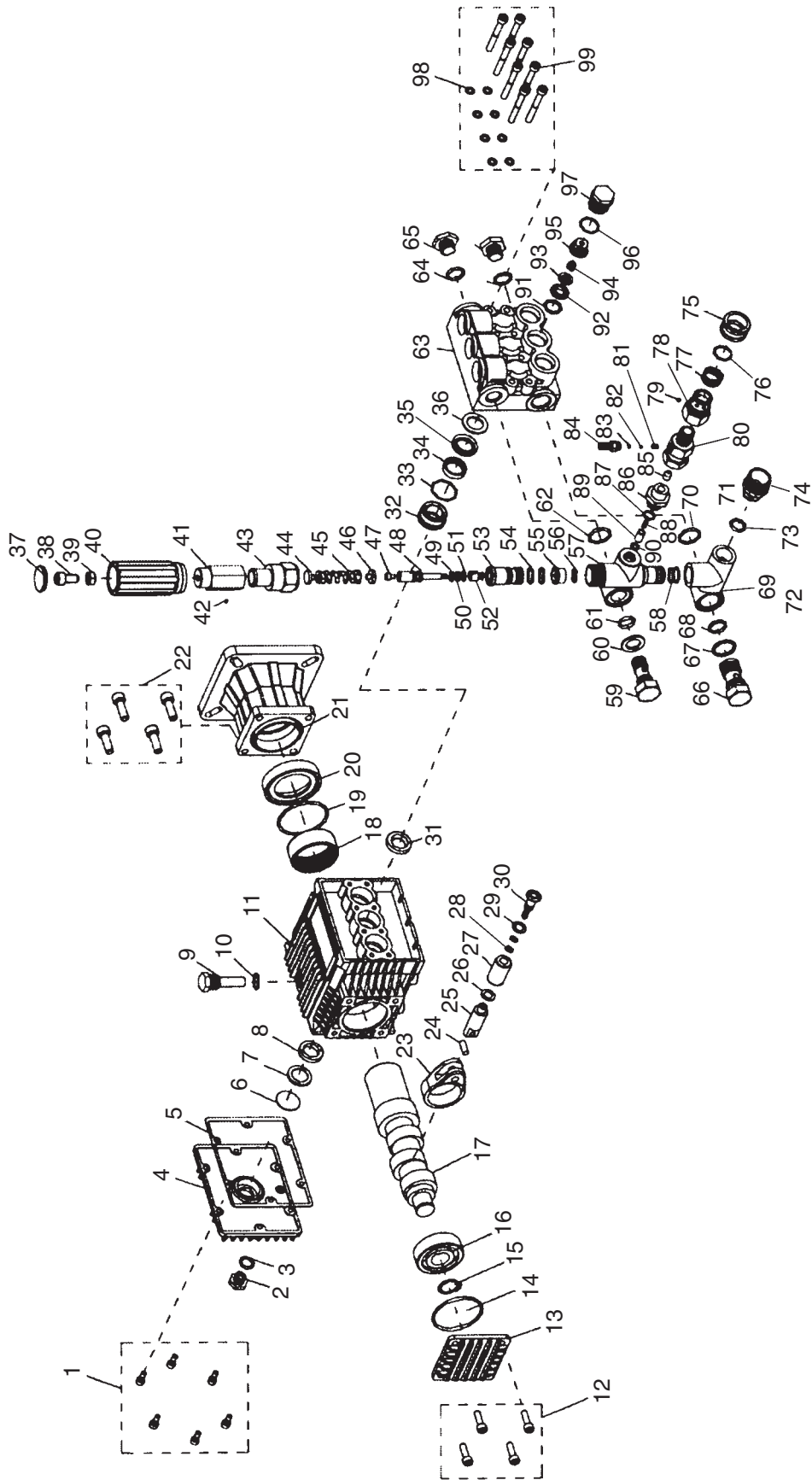
REF PART #	DESCRIPTION
304	PH8189304 SAFETY GLASSES LABEL
305	PH8189305 CARBON MONOXIDE WARNING LABEL
306	PH8189306 READ MANUAL LABEL

!WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact Grizzly at (800) 523-4777 or www.grizzly.com to order new labels.



H8190 Pump Parts Breakdown



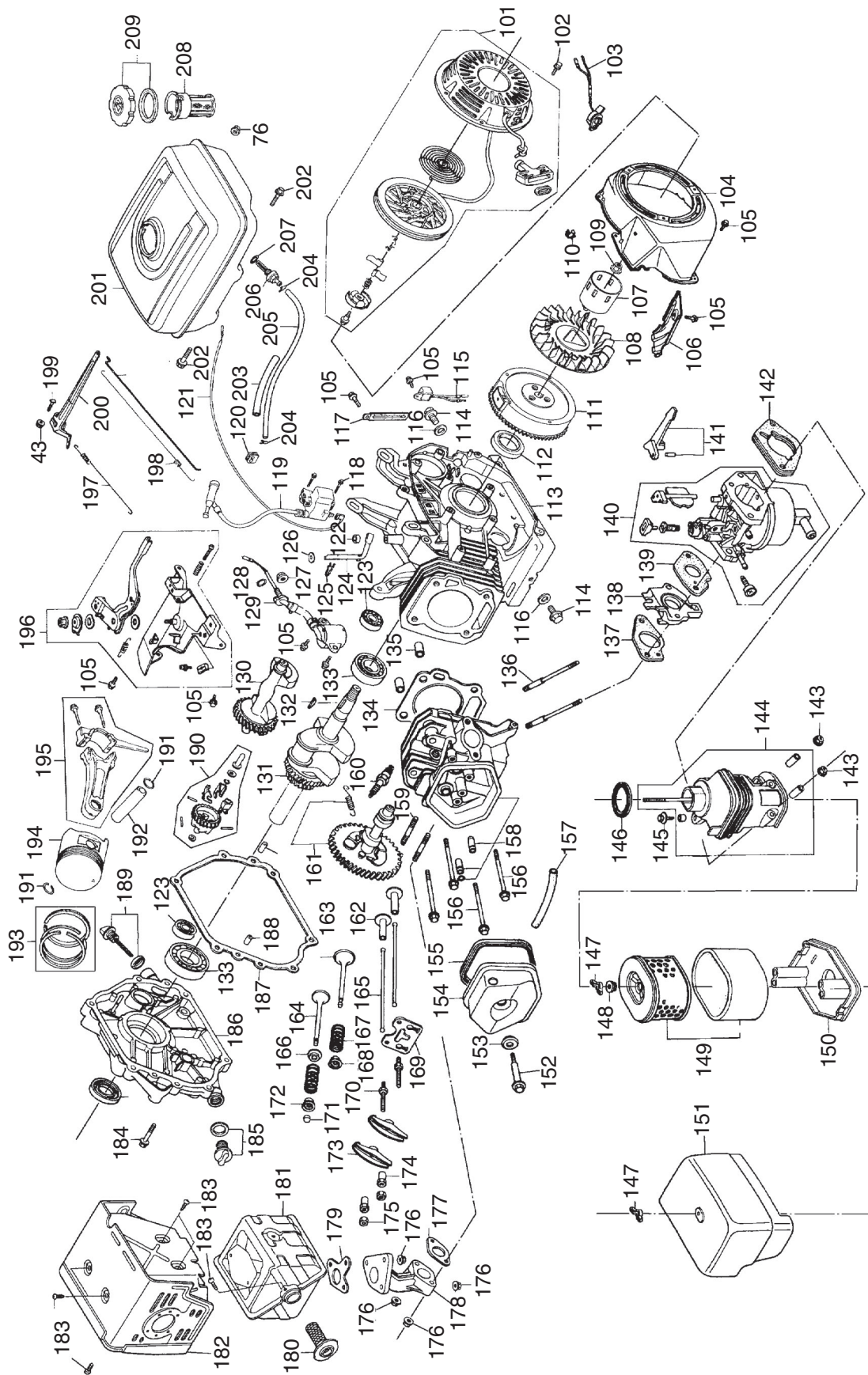
H8190 Pump Parts List

REF	PART #	DESCRIPTION
1	PH8189001	CRANK CASE COVER BOLT
2	PH8189002	OIL DRAIN PLUG
3	PH8189003	OIL DRAIN PLUG WASHER
4	PH8189004	CRANK CASE COVER
5	PH8189005	CRANK CASE COVER GASKET
6	PH8189006	SIGHT GLASS
7	PH8189007	SIGHT GLASS GASKET
8	PH8189008	SIGHT GLASS CAP
9	PH8189009	OIL INLET PLUG
10	PH8189010	OIL INLET PLUG GASKET
11	PH8189011	CRANK CASE
12	PH8189012	CRANK SHAFT COVER BOLT
13	PH8189013	CRANK SHAFT COVER
14	PH8189014	BEARING COVER GASKET
15	PH8189015	BEARING CLIP
16	PH8189016	BALL BEARING
17	PH8189017	CRANKSHAFT
18	PH8189018	NEEDLE ROLLER BEARING
19	PH8189019	FLANGE RING
20	PH8189020	CRANK SHAFT GASKET
21	PH8189021	FLANGE
22	PH8189022	FLANGE BOLT
23	PH8189023	CONNECTING ROD
24	PH8189024	CONNECTING ROD PIN
25	PH8189025	PLUNGER ROD
26	PH8189026	COPPER WASHER
27	PH8189027	CERAMIC PLUNGER
28	PH8189028	PLUNGER CAP SCREW RING
29	PH8189029	COPPER WASHER
30	PH8189030	PLUNGER CAP SCREW
31	PH8189031	LOCATING RING
32	PH8189032	LOCATING RING WATER SEAL
33	PH8189033	LOCATING RING GASKET
34	PH8189034	U-PACKING RING
35	PH8189035	U-PACKING
36	PH8189036	U-PACKING SEAT
37	PH8189037	HANDLE COVER
38	PH8189038	PRESSURE ADJUSTMENT SCREW
39	PH8189039	ADJUSTMENT SCREW FIXED NUT
40	PH8189040	PRESSURE ADJUSTMENT HANDLE
41	PH8189041	PRESSURE ADJUSTMENT SEAT
42	PH8189042	PRESSURE ADJUSTMENT FIXED SCREW
43	PH8189043	PRESSURE ADJUSTMENT VALVE
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45	PH8189045	PRESSURE ADJUSTMENT SPRING
46	PH8189046	LOWER SPRING WASHER
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48	PH8189048	WATER RETURN VALVE ROD
49	PH8189049	VALVE JACKET INNER GASKET
50	PH8189050	ADJUSTMENT VALVE SEAT

REF	PART #	DESCRIPTION
51	PH8189051	VALVE JACKET INNER GASKET
52	PH8189052	WATER RETURN VALVE CORE
53	PH8189053	WATER RETURN VALVE JACKET
54	PH8189054	VALVE JACKET OUTER GASKET
55	PH8189055	WATER RETURN VALVE SEAT
56	PH8189056	VALVE SEAT GASKET
57	PH8189057	WATER OUTLET T-CONNECTOR
58	PH8189058	T-CONNECTOR GASKET
59	PH8189059	OUTLET T-CONNECTOR FIXED BOLT
60	PH8189060	FIXED BOLT WASHER
61	PH8189061	FIX BOLT GASKET
62	PH8189062	OUTLET T-CONNECTOR GASKET
63	PH8189063	CYLINDER
64	PH8189064	SCREW GASKET
65	PH8189065	SCREW CAP
66	PH8189066	INLET T-CONNECTOR GASKET
67	PH8189067	BOLT WASHER
68	PH8189068	INLET T-CONNECTOR GASKET
69	PH8189069	WATER INLET T-CONNECTOR
70	PH8189070	INLET T-CONNECTOR GASKET
71	PH8189071	INLET SCREW GASKET
72	PH8189072	INLET SCREW
73	PH8189073	WATER INLET CONNECTOR SEAL GASKET
74	PH8189074	WATER INLET CONNECTOR
75	PH8189075	QUICK CONNECTOR CAP
76	PH8189076	BEARING CLIP
77	PH8189077	QUICK CONNECTOR GASKET
78	PH8189078	QUICK CONNECTOR
79	PH8189079	STEEL BALL
80	PH8189080	DETERGENT INJECTOR
81	PH8189081	INJECTOR SPRING
82	PH8189082	DETERGENT INJECTOR GASKET
83	PH8189083	STEEL BALL
84	PH8189084	INJECTOR NOZZLE
85	PH8189085	WATER SHOOTING NOZZLE
86	PH8189086	WATER OUTLET JOINT
87	PH8189087	WATER OUTLET JOINT GASKET
88	PH8189088	WATER OUTLET CONE VALVE SPRING
89	PH8189089	WATER OUTLET CONE VALVE
90	PH8189090	WATER OUTLET CONE VALVE GASKET
91	PH8189091	CHECK VALVE GASKET
92	PH8189092	CHECK VALVE WASHER
93	PH8189093	CHECK VALVE FLAKE
94	PH8189094	CHECK VALVE SPRING
95	PH8189095	CHECK VALVE BOX
96	PH8189096	COMPACTION CAP SEAL GASKET
97	PH8189097	CHECK VALVE COMPACTION CAP
98	PH8189098	CYLINDER BOLT WASHER
99	PH8189099	CYLINDER BOLT



H8190 Engine Parts Breakdown



H8190 Engine Parts List

REF	PART #	DESCRIPTION
101	PH8190101	RECOIL STARTER ASSEMBLY
102	PH8190102	FLANGE BOLT M6-1 X 8
103	PH8190103	ENGINE SWITCH
104	PH8190104	FAN COVER
105	PFB01M	FLANGE BOLT M6-1 X 12
106	PH8190106	SHROUD
107	PH8190107	STARTER PULLY
108	PH8190108	COOLING FAN
109	PH8190109	FLANGE NUT M16-1.75
110	PH8190110	WIRING HARNESS CLIP
111	PH8190111	FLYWHEEL
112	PH8190112	OIL SEAL
113	PH8190113	CRANK CASE ASSEMBLY
114	PH8190114	DRAIN PLUG
115	PH8190115	AMPLIFIER
116	PH8190116	DRAIN PLUG WASHER
117	PH8190117	WIRE CLIP
118	PH8190118	FLANGE BOLT M6-1 X 25
119	PH8190119	IGNITION COIL ASSEMBLY
120	PH8190120	WIRE GROMMET
121	PH8190121	STOP SWITCH CORD
122	PH8190122	OIL SEAL
123	PH8190123	RADIAL BALL BEARING 6202
124	PH8190124	GOVERNOR ARM SHAFT
125	PH8190125	LOCK PIN 10MM
126	PH8190126	WASHER
127	PH8190127	FLANGE NUT M10-1.5
128	PH8190128	O-RING 14MM
129	PH8190129	OIL LEVEL SWITCH ASSEMBLY
130	PH8190130	BALANCER
131	PH8190131	CRANKSHAFT ASSEMBLY
132	PH8190132	KEY
133	PH8190133	RADIAL BALL BEARING 6207
134	PH8190134	CYLINDER HEAD GASKET
135	PH8190135	DOWEL PIN 12 X 20
136	PH8190136	CARBURETOR STUD
137	PH8190137	INSULATOR GASKET
138	PH8190138	INSULATOR
139	PH8190139	CARBURETOR BASE GASKET
140	PH8190140	CARBURETOR ASSEMBLY
141	PH8190141	CHOKE LEVER
142	PH8190142	AIR FILTER GASKET
143	PFN02M	FLANGE NUT M6-1
144	PH8190144	AIR FILTER CASE
145	PFB06M	FLANGE BOLT M6-1 X 20
146	PH8190146	AIR FILTER SEAL
147	PH8190147	WING NUT M6-1
148	PH8190148	WASHER
149	PH8190149	AIR FILTER ELEMENT ASSEMBLY

REF	PART #	DESCRIPTION
150	PH8190150	AIR FILTER SEPARATOR
151	PH8190151	AIR FILTER COVER
152	PH8190152	VALVE COVER BOLT
153	PH8190153	VALVE COVER BOLT WASHER
154	PH8190154	VALVE COVER
155	PH8190155	VALVE COVER SEAL
156	PH8190156	FLANGE BOLT M10-1.5 X 80
157	PH8190157	PCV TUBE
158	PH8190158	CYLINDER HEAD
159	PH8190159	EXHAUST MANIFOLD STUD
160	PH8190160	SPARK PLUG
161	PH8190161	CAMSHAFT ASSEMBLY
162	PH8190162	VALVE LIFTER
163	PH8190163	INTAKE VALVE
164	PH8190164	EXHAUST VALVE
165	PH8190165	PUSH ROD
166	PH8190166	VALVE SPRING SEAT
167	PH8190167	VALVE SPRING
168	PH8190168	INTAKE VALVE SPRING RETAINER
169	PH8190169	PUSH ROD GUIDE PLATE
170	PH8190170	ROKER ARM PIVOT STUD
171	PH8190171	VALVE ROTATOR
172	PH8190172	EXHAUST VAVLE SPRING RETAINER
173	PH8190173	ROCKER ARM
174	PH8190174	ROCKER ARM NUT
175	PH8190175	ROCKER ADJUSTING NUT
176	PFN01M	FLANGE NUT M8-1.25
177	PH8190177	EXHAUST PIPE GASKET
178	PH8190178	EXHAUST PIPE
179	PH8190179	MUFFLER GASKET
180	PH8190180	SPARK ARRESTOR
181	PH8190181	MUFFLER
182	PH8190182	MUFFLER GUARD
183	PS05M	PHLP HD SCR M5-.8 X 8
184	PH8190184	FLANGE BOLT M8-1.25 X 25
185	PH8190185	OIL CAP
186	PH8190186	CRANKCASE COVER
187	PH8190187	CRANKCASE COVER GASKET
188	PH8190188	DOWEL PIN 8 X 12
189	PH8190189	DIPSTICK ASSEMBLY
190	PH8190190	GOVERNOR KIT
191	PH8190191	WRIST PIT CLIP
192	PH8190192	WRIST PIN
193	PH8190193	PISTON RING SET
194	PH8190194	PISTON
195	PH8190195	CONNECTING ROD ASSEMBLY
196	PH8190196	CONTROL ASSEMBLY
197	PH8190197	GOVERNOR SPRING
198	PH8190198	THROTTLE RETURN SPRING



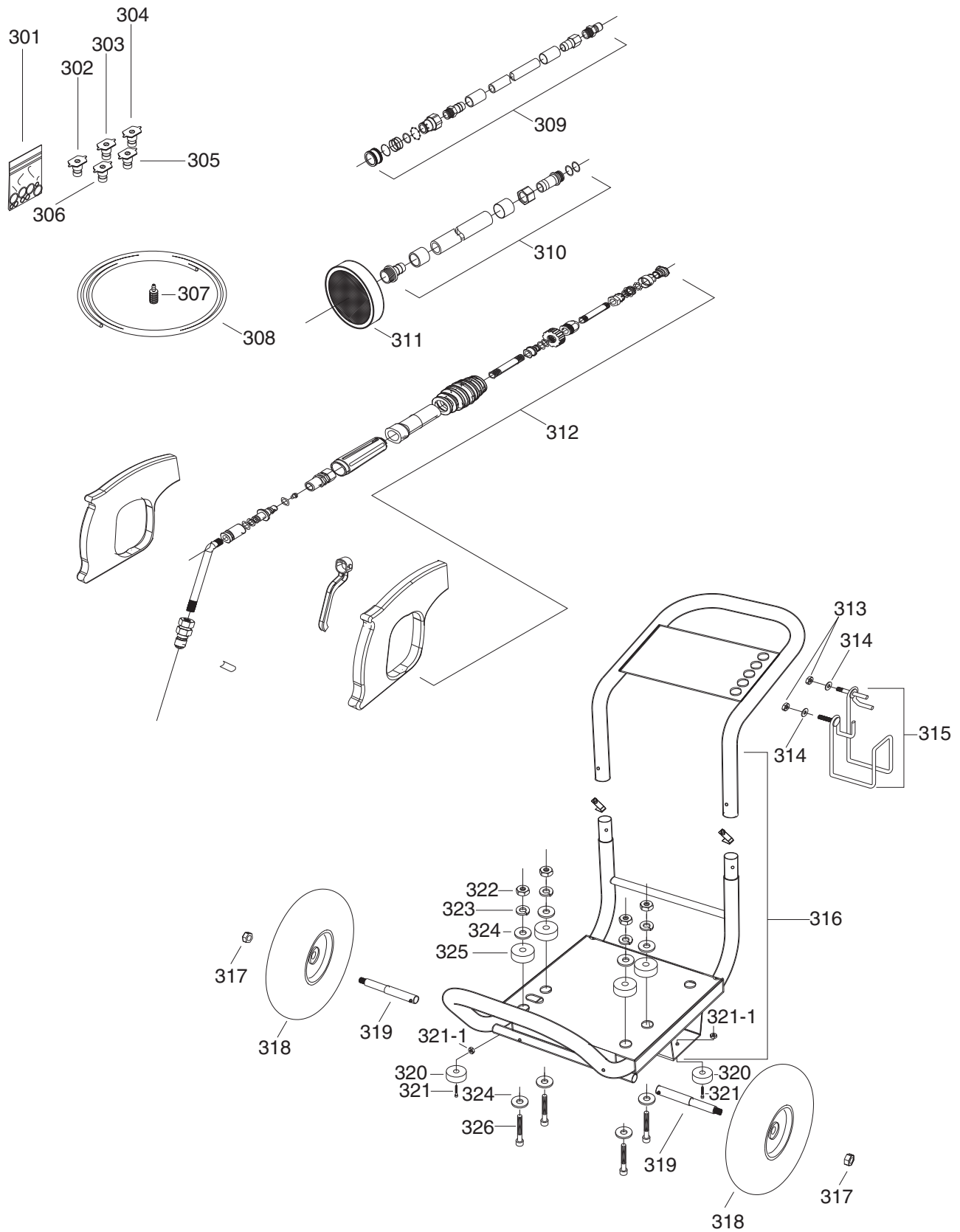
H8190 Engine Parts List

REF	PART #	DESCRIPTION
199	PH8190199	GOVERNOR ARM BOLT
200	PH8190200	GOVERNOR ARM
201	PH8190201	FUEL TANK
202	PH8190202	FLANGE BOLT M8-1.25 X 25
203	PH8190203	RUBBER SUPPORTER
204	PH8190204	FUEL VALVE

REF	PART #	DESCRIPTION
205	PH8190205	FUEL LINE
206	PH8190206	FUEL TANK JOINT
207	PH8190207	FUEL TANK JOINT SEAL
208	PH8190208	FUEL FILTER
209	PH8190209	FUEL FILTER CAP



H8190 Frame and Accessories Parts Breakdown



H8190 Frame and Accessories Parts List

REF	PART #	DESCRIPTION
301	PH8189201	O-RING KIT
302	PH8189202	0 DEGREE NOZZLE
303	PH8189203	15 DEGREE NOZZLE
304	PH8189204	25 DEGREE NOZZLE
305	PH8189205	40 DEGREE NOZZLE
306	PH8189206	CHEMICAL NOZZLE
307	PH8189207	CHEMICAL FILTER
308	PH8189208	CHEMICAL HOSE
309	PH8189209	HIGH PRESSURE HOSE
310	PH8189210	INPUT HOSE
311	PH8189211	INPUT HOSE FILTER
312	PH8189212	SPRAY GUN AND WAND ASSEMBLY
313	PN03M	HEX NUT M8-1.25
314	PW01M	FLAT WASHER 8MM

REF	PART #	DESCRIPTION
315	PH8190215	SPRAY GUN BRACKET
316	PH8190216	FRAME ASSEMBLY
317	PN09M	HEX NUT M12-1.75
318	PH8190218	WHEEL ASSEMBLY
319	PH8190219	AXLE
320	PH8190220	RUBBER PAD
321	PSB74M	CAP SCREW M6-1 X 18
321-1	PN01M	HEX NUT M6-1
322	PN02M	HEX NUT M10-1.5
333	PLW06M	LOCK WASHER 10MM
344	PW04M	FLAT WASHER 10MM
355	PH8190225	RUBBER PAD
366	PH8190226	HEX BOLT M10-1.5 60



H8189 Machine Labels Breakdown



REF PART #	DESCRIPTION
401	PH8189301 MACHINE ID LABEL
402	PH8189302 FLAMABLE WARNING LABEL
403	PH8189303 CARBON MONOXIDE WARNING LABEL

REF PART #	DESCRIPTION
404	PH8189304 SAFETY GLASSES LABEL
405	PH8189305 HOT SURFACES WARNING LABEL
406	PH8189306 READ MANUAL LABEL

WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact Grizzly at (800) 523-4777 or www.grizzly.com to order new labels.





WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____ Invoice # _____

Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. **Of course, all information is strictly confidential.**

1. How did you learn about us?

- | | | |
|--|----------------------------------|----------------------------------|
| <input type="checkbox"/> Advertisement | <input type="checkbox"/> Friend | <input type="checkbox"/> Catalog |
| <input type="checkbox"/> Card Deck | <input type="checkbox"/> Website | <input type="checkbox"/> Other: |

2. Which of the following magazines do you subscribe to?

- | | | |
|---|--|---|
| <input type="checkbox"/> Cabinet Maker | <input type="checkbox"/> Popular Mechanics | <input type="checkbox"/> Today's Homeowner |
| <input type="checkbox"/> Family Handyman | <input type="checkbox"/> Popular Science | <input type="checkbox"/> Wood |
| <input type="checkbox"/> Hand Loader | <input type="checkbox"/> Popular Woodworking | <input type="checkbox"/> Wooden Boat |
| <input type="checkbox"/> Handy | <input type="checkbox"/> Practical Homeowner | <input type="checkbox"/> Woodshop News |
| <input type="checkbox"/> Home Shop Machinist | <input type="checkbox"/> Precision Shooter | <input type="checkbox"/> Woodsmith |
| <input type="checkbox"/> Journal of Light Cont. | <input type="checkbox"/> Projects in Metal | <input type="checkbox"/> Woodwork |
| <input type="checkbox"/> Live Steam | <input type="checkbox"/> RC Modeler | <input type="checkbox"/> Woodworker West |
| <input type="checkbox"/> Model Airplane News | <input type="checkbox"/> Rifle | <input type="checkbox"/> Woodworker's Journal |
| <input type="checkbox"/> Modeltec | <input type="checkbox"/> Shop Notes | <input type="checkbox"/> Other: |
| <input type="checkbox"/> Old House Journal | <input type="checkbox"/> Shotgun News | |

3. What is your annual household income?

- | | | |
|--|--|--|
| <input type="checkbox"/> \$20,000-\$29,000 | <input type="checkbox"/> \$30,000-\$39,000 | <input type="checkbox"/> \$40,000-\$49,000 |
| <input type="checkbox"/> \$50,000-\$59,000 | <input type="checkbox"/> \$60,000-\$69,000 | <input type="checkbox"/> \$70,000+ |

4. What is your age group?

- | | | |
|--------------------------------|--------------------------------|--------------------------------|
| <input type="checkbox"/> 20-29 | <input type="checkbox"/> 30-39 | <input type="checkbox"/> 40-49 |
| <input type="checkbox"/> 50-59 | <input type="checkbox"/> 60-69 | <input type="checkbox"/> 70+ |

5. How long have you been a woodworker/metalworker?

- | | | | |
|------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| <input type="checkbox"/> 0-2 Years | <input type="checkbox"/> 2-8 Years | <input type="checkbox"/> 8-20 Years | <input type="checkbox"/> 20+ Years |
|------------------------------------|------------------------------------|-------------------------------------|------------------------------------|

6. How many of your machines or tools are Grizzly?

- | | | | |
|------------------------------|------------------------------|------------------------------|------------------------------|
| <input type="checkbox"/> 0-2 | <input type="checkbox"/> 3-5 | <input type="checkbox"/> 6-9 | <input type="checkbox"/> 10+ |
|------------------------------|------------------------------|------------------------------|------------------------------|

7. Do you think your machine represents a good value? Yes No

8. Would you recommend Grizzly Industrial to a friend? Yes No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: We never use names more than 3 times. Yes No

10. Comments: _____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE



Place Stamp Here



GRIZZLY INDUSTRIAL, INC.
P.O. BOX 2069
BELLINGHAM, WA 98227-2069



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Send a Grizzly Catalog to a friend:

Name _____
Street _____
City _____ State _____ Zip _____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

grizzly.com

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